

H. S. FROST.
Umbrella-Runner.

No. 168,892.

Patented Oct. 19, 1875.

Fig 1.

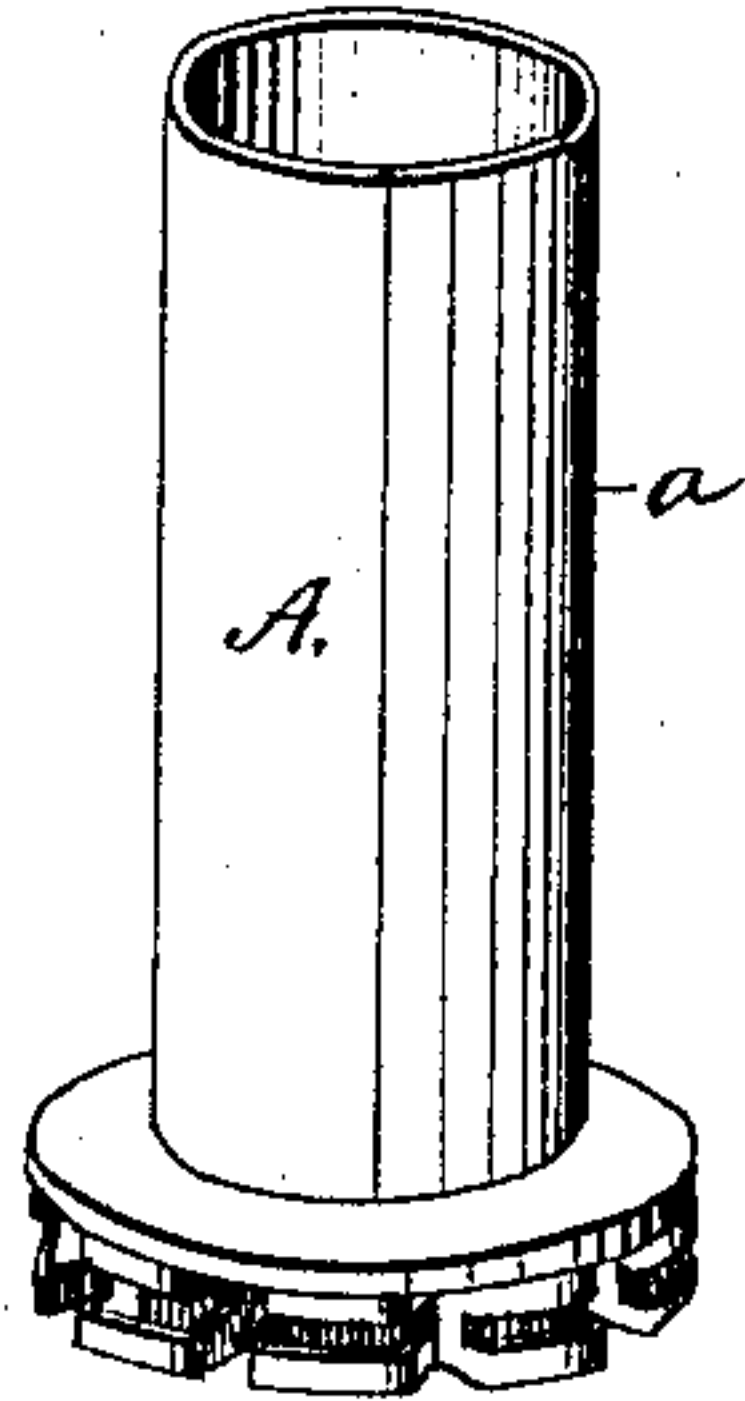


Fig 2.

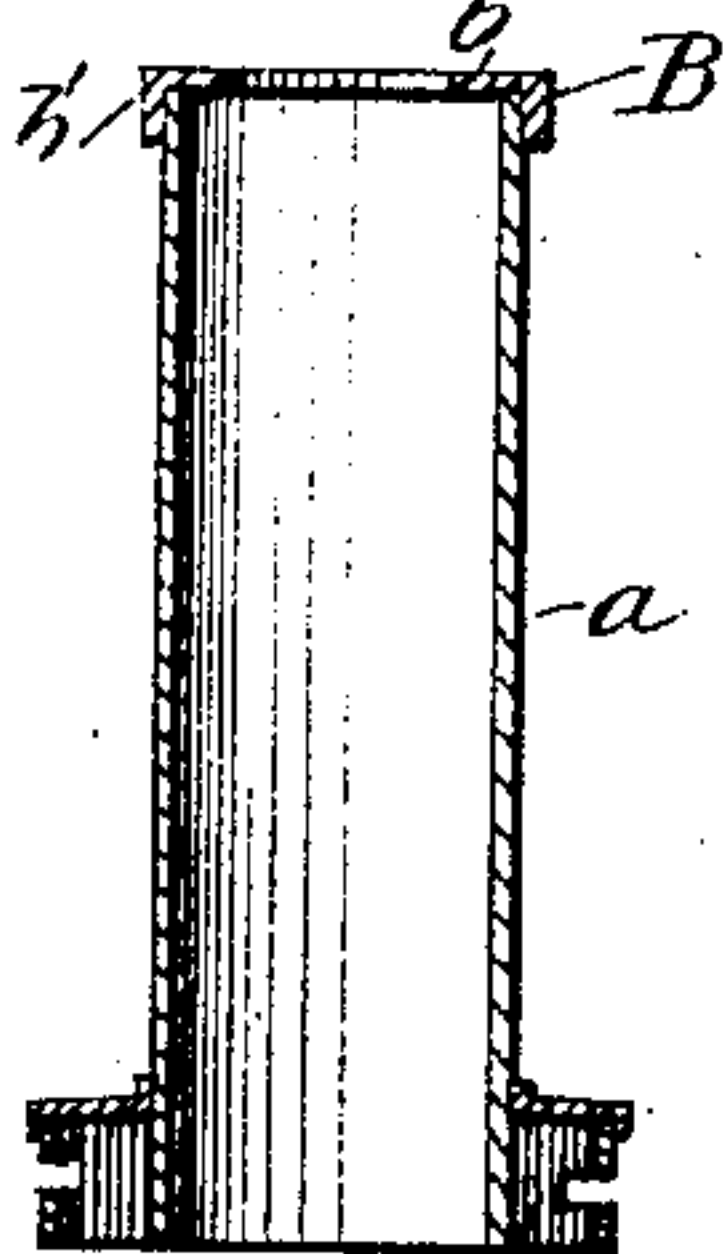
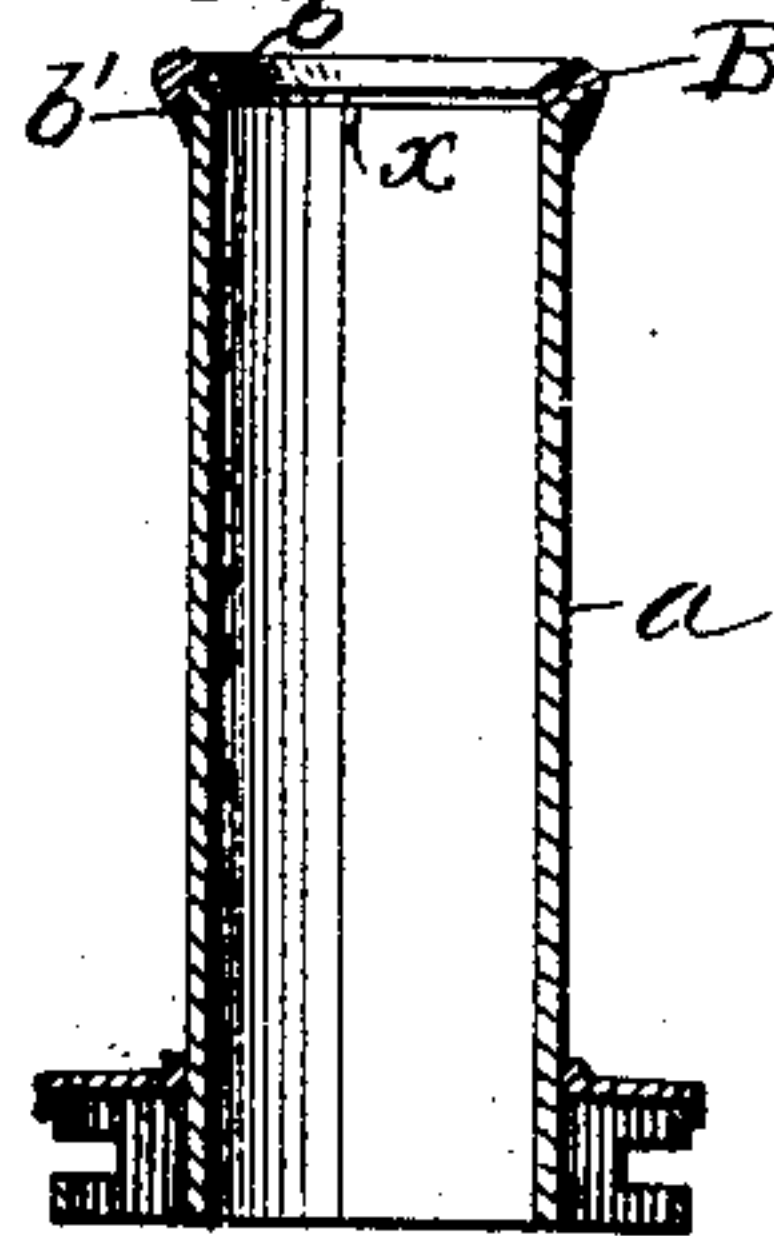


Fig 3.



Witnesses;
Harry C. Clark
Chas. A. Brainerd

Inventor.
Henry S. Frost
by *H. W. Beadle & Co.*
his Atty

UNITED STATES PATENT OFFICE.

HENRY S. FROST, OF WATERTOWN, CONNECTICUT, ASSIGNOR TO A. N. WOOLSON, OF SAME PLACE.

IMPROVEMENT IN UMBRELLA-RUNNERS.

Specification forming part of Letters Patent No. **168,892**, dated October 19, 1875; application filed September 17, 1875.

To all whom it may concern:

Be it known that I, HENRY S. FROST, of Watertown, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Umbrella-Runners; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention consists in providing the lower end of the runner with a cap, which, covering the edge of the cylinder and projecting inside and outside of the same, is so swaged in proper dies as to form, with the edge of the cylinder, an outwardly-flaring ring of great strength and rigidity, as will be fully described hereinafter.

In the drawings, Figure 1 represents a perspective view of the runner before the compound ring is applied; and Figs. 2 and 3, sectional views, representing the manner of applying the ring.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A represents the runner, which may be constructed, as far as its upper end is concerned, in any proper manner. *a* represents its cylinder, the lower end of which is to be re-enforced by the cap B. B represents a cap, consisting of a ring of any suitable metal, provided with the right-angle flanges *b b'*, as shown. The cap B is united to the cylinder *a*

by placing it over its edge, as shown in Fig. 2, and then swaging the parts by proper dies, so as to form the outwardly-flaring compound ring *x*, as shown in Fig. 3.

This invention is specially adapted for runners made from sheet metal, and having consequently a split cylinder, which must be secured at the ends to prevent opening. A simple band is usually placed about the lower end and secured in position by solder; but this possesses little strength and soon gives way under strain.

The construction described possesses great strength, not only on account of the increased amount of metal used, but more especially because the parts are swaged into the outwardly-flaring form, so that it is impossible to remove the cap without causing the ring to expand over the cylinder edge, or the cylinder edge to bend inward at a short angle—a result which the rigidity of the metal will not permit.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The runner described, provided with the cap B, swaged upon its end, so as to form the outwardly-flaring ring *x*; substantially as described, and for the purpose set forth.

This specification signed and witnessed this 11th day of September, A. D. 1875.

HENRY S. FROST.

Witnesses:

TRUMAN P. BALDWIN,
LEMAN W. CUTLER.